
U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

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MOLYBDENUM IN DECEMBER 1997

Domestic production of molybdenum in concentrate decreased 6% in December 1997 compared with that of the previous month and was 2% less than in December 1996, according to the U.S. Geological Survey. Producer molybdenum stocks in concentrate, oxide, and other product forms were 8,250 metric tons at the beginning of 1997 and 10,400 metric tons at the end of December 1997.

Included in this Mineral Industry Surveys are U.S. production, shipments, and stocks of molybdenum concentrates and materials, plus U.S. consumption by end use of molybdenum in the previous and current months. Also included are trade data for the previous 2 months. During the current month, Platt's

Metals Week U.S. monthly average price for molybdenum concentrate was \$4.960 per kilogram (\$2.250 per pound). The average price for dealer molybdenum oxide was \$8.157 per kilogram (\$3.700 per pound) and that for dealer ferromolybdenum was \$11.078 per kilogram (\$5.025 per pound).

For the week ending February 20, 1998, Metals Week U.S. average price for molybdenum concentrate was \$4.960 per kilogram (\$2.250 per pound). The average price for dealer molybdenum oxide was \$8.700 per kilogram (\$3.950 per pound) and that for ferromolybdenum was \$11.188 per kilogram (\$5.075 per pound).

TABLE 1
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS 1/

(Metric tons, contained molybdenum)

| | 1996 | 1997 | | |
|---------------|--------|----------|----------|--------------|
| | | November | December | Year to date |
| Production | 56,000 | 4,820 | 4,530 | 60,100 |
| Shipments: 2/ | | | | |
| Domestic | 16,100 | 1,090 | 961 | 12,300 |
| Export | 19,700 | 1,200 | 1,490 | 19,900 |

1/ Data are rounded to three significant digits.

2/ Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 2
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM PRODUCTS 1/

(Metric tons, contained molybdenum)

| | 1996 | 1997 | | |
|-------------------------|--------|----------|----------|--------------|
| | | November | December | Year to date |
| Gross production | 46,300 | 4,160 | 4,060 | 48,500 |
| Internal consumption 2/ | 23,900 | 2,040 | 1,980 | 23,100 |
| Gross shipments | 24,100 | 1,840 | 1,790 | 25,900 |

1/ Data are rounded to three significant digits.

2/ Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 3
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS 1/ IN 1997

(Kilograms, contained molybdenum)

| End use | Molybdic oxides | Ferro molybdenum 2/ | Ammonium and sodium molybdate | Molybdenum scrap | Other | Total |
|--|-----------------|---------------------|-------------------------------|------------------|------------|-----------|
| November: | | | | | | |
| Steel: | | | | | | |
| Carbon | 37,100 r/ | W | -- | -- | 3,190 | 40,200 |
| High-strength low-alloy | 49,600 | 8,930 | -- | -- | -- | 58,600 |
| Stainless and heat-resisting | 229,000 | 25,400 | -- | -- | 4,700 | 259,000 |
| Full alloy | 183,000 | 174,000 | -- | -- | 2,330 | 360,000 |
| Tool | 67,200 | 8,480 | -- | -- | 2,310 | 78,000 |
| Total | 566,000 r/ | 217,000 | -- | -- | 12,500 | 796,000 |
| Cast irons (gray, malleable, and ductile iron) | 1,670 | 46,100 r/ | -- | -- | 763 | 48,500 |
| Superalloys | W | W | -- | (3/) | 47,500 r/ | 47,500 |
| Alloys: (other than steels, cast irons, and superalloys) | | | | | | |
| Welding materials (structural and hard-facing) | -- | W | -- | -- | 285 | 285 |
| Other alloys | -- | W | -- | 534 | 6,150 | 6,690 |
| Mill products made from metal powder 4/ | -- | -- | -- | -- | 228,000 | 228,000 |
| Cemented carbides and related products 5/ | -- | -- | -- | -- | 21 r/ | 21 |
| Chemical and ceramic uses: | | | | | | |
| Pigments | -- | -- | 982 | -- | -- | 982 |
| Catalysts | 77,300 | -- | (6/) | -- | 14,900 r/ | 77,300 |
| Other | W | -- | -- | -- | 2,330 | 2,330 |
| Miscellaneous and unspecified uses: | | | | | | |
| Lubricants | -- | W | -- | -- | -- | 12,100 |
| Other | 80,600 | 37,400 | (7/) | -- | 12,100 r/ | 130,000 |
| Grand total | 645,000 r/ | 301,000 | 982 | 534 | 325,000 r/ | 1,270,000 |
| Stocks, November 30, 1997 | 587,000 r/ | 222,000 r/ | 3,850 r/ | 40,700 | 808,000 | 1,660,000 |

See footnotes at end of table.

TABLE 3--Continued
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS 1/ IN 1997

(Kilograms, contained molybdenum)

| End use | Molybdic oxides | Ferro molybdenum 2/ | Ammonium and sodium molybdate | Molybdenum scrap | Other | Total |
|--|-----------------|---------------------|-------------------------------|------------------|---------|-----------|
| December: | | | | | | |
| Steel: | | | | | | |
| Carbon | 58,200 | W | -- | -- | 3,190 | 61,400 |
| High-strength low-alloy | 49,000 | 8,860 | -- | -- | -- | 57,900 |
| Stainless and heat-resisting | 170,000 | 22,900 | -- | -- | 4,700 | 198,000 |
| Full alloy | 184,000 | 161,000 | -- | -- | 2,330 | 347,000 |
| Tool | 63,400 | 7,370 | -- | -- | 2,310 | 73,100 |
| Total | 525,000 | 200,000 | -- | -- | 12,500 | 738,000 |
| Cast irons (gray, malleable, and ductile iron) | 1,670 | 35,500 | -- | -- | 763 | 37,900 |
| Superalloys | 80,900 | W | -- | 38,500 | 40,500 | 160,000 |
| Alloys: (other than steels, cast irons, and superalloys) | | | | | | |
| Welding materials (structural and hard-facing) | -- | W | -- | -- | 285 | 285 |
| Other alloys | -- | W | -- | 534 | 6,150 | 6,690 |
| Mill products made from metal powder 4/ | -- | -- | -- | -- | 226,000 | 226,000 |
| Cemented carbides and related products 5/ | -- | -- | -- | -- | 19 | 19 |
| Chemical and ceramic uses: | | | | | | |
| Pigments | -- | -- | 1,290 | -- | -- | 1,290 |
| Catalysts | 77,300 | -- | (6/) | -- | 14,900 | 92,200 |
| Other | W | -- | -- | -- | 1,950 | 1,950 |
| Miscellaneous and unspecified uses: | | | | | | |
| Lubricants | -- | -- | -- | -- | (7/) | 12,000 |
| Other | -- | 36,900 | (7/) | -- | 12,000 | 48,800 |
| Grand total | 685,000 | 273,000 | 1,290 | 39,100 | 316,000 | 1,310,000 |
| Stocks, December 31, 1997 | 736,000 | 208,000 | 11,800 | 45,200 | 802,000 | 1,800,000 |

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes calcium molybdate.

3/ Included in "Superalloys: Other."

4/ Includes ingot, wire, rod, and sheet.

5/ Includes construction, mining, oil and gas, metal working machinery.

6/ Included in "Catalyst: Other."

7/ Included in "Miscellaneous and unspecified uses: Other: Other."

TABLE 4
U. S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES
(Including roasted concentrate), BY COUNTRY 1/

(Kilograms, contained molybdenum)

| Country | 1996 | 1997 | | |
|--------------------|------------|-----------|-----------|--------------|
| | | October | November | Year to date |
| Australia | 30,900 | -- | 147,000 | 219,000 |
| Belgium | 12,400,000 | 1,000,000 | 714,000 | 12,600,000 |
| Brazil | 20,400 | 18,800 | -- | 51,200 |
| Canada | 268,000 | 65,200 | 60,200 | 505,000 |
| Chile | 6,990,000 | 731,000 | 547,000 | 5,830,000 |
| China | 1,290,000 | -- | -- | 313,000 |
| France | 5,620 | -- | -- | 143 |
| Germany | 505,000 | 240,000 | 29,200 | 765,000 |
| India | 58,600 | -- | -- | -- |
| Italy | 384,000 | 57,100 | 51,900 | 322,000 |
| Japan | 5,140,000 | 663,000 | 313,000 | 5,380,000 |
| Korea, Republic of | 10,200 | -- | -- | 272 |
| Mexico | 5,500,000 | 778,000 | 621,000 | 5,520,000 |
| Netherlands | 5,890,000 | 1,610,000 | 608,000 | 14,500,000 |
| Spain | 19,900 | 18,600 | 18,600 | 140,000 |
| Sweden | 473,000 | 114,000 | 57,100 | 879,000 |
| United Kingdom | 6,010,000 | 705,000 | 561,000 | 5,160,000 |
| Other | -- | -- | 281 | 10,200 |
| Total | 45,000,000 | 6,010,000 | 3,730,000 | 52,200,000 |

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 5
U. S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY 1/

(Kilograms, contained molybdenum)

| Country | 1996 | 1997 | | |
|--------------------|---------|---------|----------|--------------|
| | | October | November | Year to date |
| Australia | -- | -- | 164 | 710 |
| Canada | 252,000 | 63,900 | 34,500 | 446,000 |
| China | -- | 14,100 | 12,400 | 29,600 |
| Italy | -- | -- | -- | 3,170 |
| Japan | 117,000 | -- | -- | 41,700 |
| Korea, Republic of | 1,910 | -- | -- | 1,970 |
| Malaysia | 37,200 | -- | -- | -- |
| Mexico | 117,000 | 4,530 | 3,820 | 102,000 |
| Singapore | 53,900 | -- | -- | -- |
| Spain | 1,160 | -- | -- | -- |
| Taiwan | -- | -- | -- | 10,600 |
| Venezuela | 1,090 | -- | 1,520 | 1,520 |
| Other | -- | 182 | -- | 182 |
| Total | 581,000 | 82,800 | 52,400 | 637,000 |

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS 1/

(Kilograms unless otherwise specified)

| Material | 1996 | | | 1997 | | |
|---------------------------------|------------------|----------------------|----------------------------|------------------|----------------------|----------------------------|
| | January-December | | | January-November | | |
| | Gross weight | Contained molybdenum | Value (c.i.f.) (thousands) | Gross weight | Contained molybdenum | Value (c.i.f.) (thousands) |
| Ore and concentrates roasted | 8,090,000 | 3,460,000 | \$41,300 | 7,540,000 | 4,700,000 | \$45,600 |
| Ore and concentrates other | 35,600 | 21,100 | 173 | 2,140,000 | 1,130,000 | 7,990 |
| Molybdenum chemicals: | | | | | | |
| Oxides and hydroxides | 1,160,000 | NA | 8850 | 1,350,000 | NA | 10,900 |
| Molybdates of ammonium | 665,000 | 368,000 | 5360 | 726,000 | 387,000 | 5,720 |
| Molybdates (all others) | 82,500 | 36,400 | 506 | 222,000 | 138,000 | 1,220 |
| Molybdenum orange | 1,840,000 | NA | 5710 | 1,620,000 | NA | 5,880 |
| Mixtures of inorganic compounds | -- | -- | -- | -- | -- | -- |
| Ferromolybdenum | 7,870,000 | 4,960,000 | 55100 | 5,240,000 | 3,270,000 | 33,000 |
| Molybdenum powders | 125,000 | 110,000 | 3470 | 67,800 | 59,900 | 2,320 |
| Molybdenum unwrought | 91,100 | 84,400 | 2380 | 317,000 | 295,000 | 4,620 |
| Molybdenum waste and scrap | 693,000 | 640,000 | 9720 | 528,000 | 519,000 | 8,520 |
| Molybdenum wrought | -- | -- | -- | -- | -- | -- |
| Molybdenum wire | 1,990 | NA | 320 | 3,520 | NA | 436 |
| Molybdenum other | 3,870 | NA | 1060 | 6,380 | NA | 1,130 |
| Total | 20,700,000 | 11,700,000 | 134000 | 19,800,000 | 10,500,000 | 127,000 |

NA Not available.

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.